

# PATENT SPECIFICATION

280,635

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## PROVISIONAL SPECIFICATION.

### Improvements in or relating to the Ventilation and Cooling of Dynamos, Electric Motors and similar Machines.

I, HENRY CHITTY, of 2, St. George's Terrace, Herne Bay, of British nationality, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to dynamos, electric motors and similar machines, applicable to either open or enclosed types, and has among its objects to provide improved means for the ventilation and cooling of such machines.

10 According to the invention the casing of the machine is provided with series of outlets advantageously in the form of peripheral slots, the openings or slots being  
15 advantageously disposed at short determined distances apart whereby series of ribs or partitions are formed between the respective slots. By such means the radiating surface of the machine is greatly increased and on the rotation of the armature air  
20 which may be admitted or supplied to the casing of the machine, for example, in a

central position at one end of the casing is thrown out by centrifugal force and passes out of the casing through the openings or  
25 slots referred to, the air in passing in contact with the ribs or partitions formed between the openings or slots serving to dissipate the heat radiating from the bars formed as above. The bars may be either  
30 straight or corrugated or of any other suitable form.

It will be understood that the openings or slots in the casing may extend substantially completely across the top and bottom  
35 of the casing being interrupted at a middle position in order that the strength of the casing may not be impaired.

Dated this 3rd day of August, 1926.

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## COMPLETE SPECIFICATION.

### Improvements in or relating to the Ventilation and Cooling of Dynamos, Electric Motors and similar Machines.

I, HENRY CHITTY, of 2, St. George's Terrace, Herne Bay, of British nationality,  
45 do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

50 This invention relates to dynamos, electric motors and similar machines, applicable to either open or enclosed types, and has among its objects to provide improved means for the ventilation and cooling of such machines.

55 According to the invention the casing of  
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the machine is provided with series of outlets in the form of peripheral slots, the openings or slots being disposed at short determined distances apart whereby series of  
60 ribs or partitions are formed between the respective slots. By such means the radiating surface of the machine is greatly increased and on the rotation of the armature air which may be admitted or supplied  
65 to the casing of the machine, for example, in a central position at the ends of the casing is thrown out by centrifugal force and passes out of the casing through the openings or slots referred to, the air in passing  
70

in contact with the ribs or partitions formed between the openings or slots serving to dissipate the heat radiating from the bars formed as above.

5 The bars may be either straight or corrugated or of any other suitable form.

According to the invention, moreover, the casing of the machine may be provided of substantially square or other cross-section such that spaces are formed between the armature and the casing and a number of parallel disposed peripheral ribs or partitions are disposed within the spaces referred to, and are formed as continuations of the ribs or partitions between the openings or slots referred to, so that thus further surfaces are provided which are adapted to be cooled by the air flowing out through the openings or slots.

20 The invention further comprises the features hereinafter described.

The invention is hereinafter described with reference to the accompanying diagrammatic drawings, by way of example, in which,

Figure 1 is an end elevation, in part cross-section, of the casing of a dynamo or other electrical machine constructed according to the invention, and

30 Figure 2 is a side elevation corresponding to Figure 1, the part in cross-section being taken on the line 2—2 Figure 1.

In carrying the invention into effect according to one construction as illustrated in the accompanying diagrammatic drawings, the casing *a* of a dynamo, electric motor or like machine is provided of a substantially square cross-section. The sides of the casing *a* and the top and bottom thereof may be more or less curved. By such formation of the casing *a* spaces are formed at the corners *b* of the casing between it and the armature. At this position the top, bottom and sides of the casing are provided with series of openings or slots *d*, *d*<sup>1</sup> peripherally arranged and spaced at a short distance apart; ribs or partitions *c* are thus formed between the openings or slots of each of the series *d*, *d*<sup>1</sup> and these ribs or partitions may extend inwardly with respect to the spaces formed at the corners of the casing. By such means comparatively large cooling surfaces are provided with which the air flowing out from the casing *a* contacts, and thus the motor or like machine may be effectively cooled or ventilated.

It will be understood that the openings or

slots *d* in the casing may extend substantially completely across the top and bottom of the casing, being interrupted at a middle position *e* in order that the strength of the casing may not be impaired, while the openings or slots *d*<sup>1</sup> in the side of the casing *a* may extend from positions adjacent the corners *b* thereof to the upper and lower edges of the pole pieces. The casing *a* is supported at its lower end by means of suitable lugs *f* or the like which are adapted to afford a free passage for the air flowing from the openings or slots *d*, *d*<sup>1</sup> at the lower part of the casing *a*.

It will be observed that where the casing *a* forms the yoke to which the magnet poles are secured, the ribs or partitions *c* form a path for the magnetic flux from pole to pole and at the same time provide effective radiating surfaces for the purpose of facilitating heat dissipation, while the strength of the yoke or casing is increased, more especially where the ribs or partitions are extended inwardly.

No broad claim is made to the provision of openings in the casings of dynamo electric machines for the purpose of ventilation.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Means for the ventilation and cooling of dynamos, electric motors and similar machines, comprising a series of peripheral outlets or slots in the casing of the machine, the said slots being disposed in proximity one with the other for the formation of a series of cooling ribs or partitions between adjacent outlets or slots, substantially as hereinbefore described.

2. Means for the ventilation and cooling of dynamos, electric motors and similar machines, according to Claim 1, wherein the interior of the casing is formed with recesses across which ribs or partitions are extended to form cooling surfaces, substantially as described.

3. Means for ventilating and cooling dynamos, electric motors and similar machines, substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 27th day of April, 1927.

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*[This Drawing is a reproduction of the Original on a reduced scale.]*

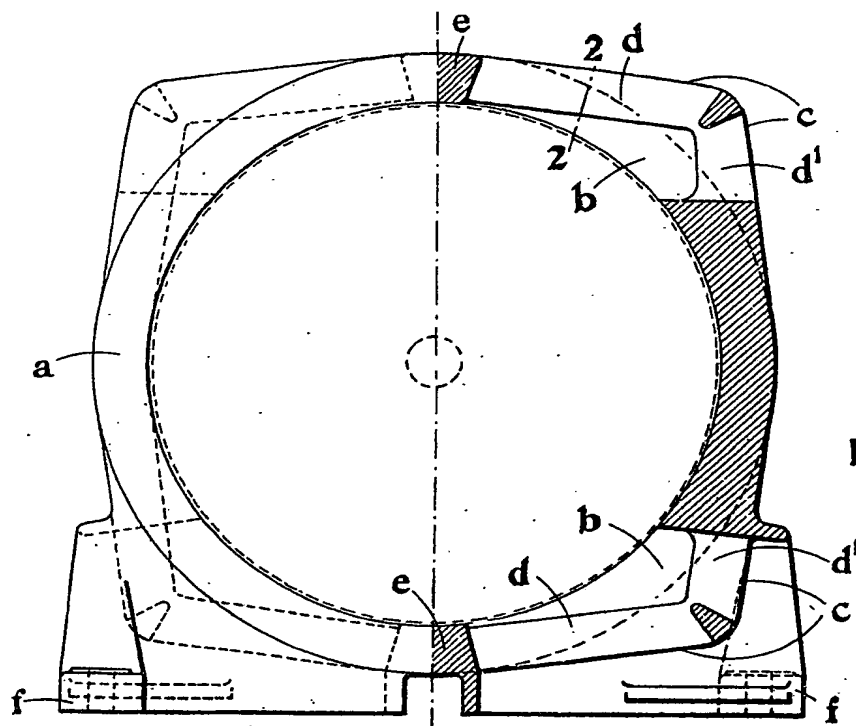


Fig. 1.

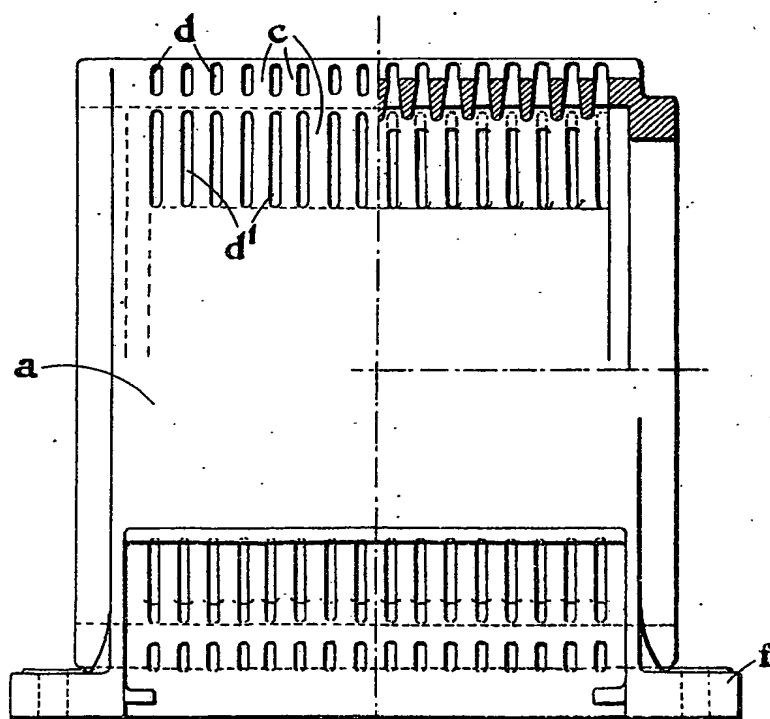


Fig. 2.

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